CLAIMS

What is claimed is:

1. A retroviral vector carrying a DNA sequence encoding SDI-1, a functional analogue, or a fragment thereof, or an antisense SDI-1 DNA sequence.

2. A retroviral vector according to Claim 1 carrying a DNA sequence encoding SDI-1.

3. A retroviral vector according to Claim 1 wherein the DNA sequence codes for amino acids 1 to 71 of SDI-1.

4. A retroviral vector according to Claim 1 wherein the DNA sequence codes for amino acids 42 to 58 of SDI-1.

5. A retroviral vector according to Claim 1 carrying a DNA sequence which is antisense to the SDI-1 gene.

6. A retroviral vector according to Claim 1 wherein the antisense SDI-1 DNA sequence is 10 to 30, preferably 15 to 24 nucleotides long and prepared according to the nucleotide sequence of the SDI-1 gene.

7. A retroviral vector according to Claim 6 wherein the antisense SDI-1 DNA sequence is antisense to nucleotides 75 to 93 of the DNA sequence encoding SDI-1.

8. A retroviral vector according to Claim 1, wherein the vector comprises a 5' LTR region of the structure U3-R-U5; one or more sequences selected from coding and noncoding sequences; and a 3' LTR region comprising a completely or partially deleted U3 region wherein said deleted U3 region is replaced by a polylinker sequence containing a regulatory element or a promoter, followed by the U5 and R region, characterized in that at least one of the coding sequences is a DNA sequence encoding SDI-1, a functional analogue thereof, or a fragment thereof, or an antisense SDI-1 DNA sequence which is under transcriptional control of said regulatory element or promoter.

9. A retroviral vector according to Claim 1 wherein the DNA sequence encoding SDI-1, a functional analogue, or a fragment thereof, or the antisense SDI-1 DNA sequence is under transcriptional control of a target cell specific regulatory element or promoter or an X-ray inducible promoter.

10. A retroviral vector according to Claim 9 wherein the target cell specific regulatory element is the selected from the WAP and MMTV regulatory elements.

11. A retroviral vector according to Claim 10 which is pLXS-SDI1.

12. A retroviral vector according to Claim 10 which is pLX125.IDS.

13. A packaging cell line harbouring:

a) a retroviral vector according to Claim 1; and

b) at least one DNA construct coding for the proteins required for said retroviral vector to be packaged.

14. A packaging cell line according to Claim 13 which is of human origin.

15. Encapsulated cells comprising a core containing packaging cells according to Claim 13 and a porous capsule wall surrounding said core, said porous capsule wall being permeable to the retroviral particles produced by said packaging cells.

16. Encapsulated cells according to Claim 15 wherein said porous capsule wall consists of a polyelectrolyte complex formed from counter charged polyelectrolytes.

17. A recombinant retroviral particle produced by culturing a packaging cell line according to Claim 13 harbouring a retroviral vector carrying a DNA sequence encoding SDI-1, a functional analogue, or a fragment thereof, under suitable conditions optionally followed by isolation of the recombinant retroviral particle produced.

18. A recombinant retroviral particle produced by culturing a packaging cell line according to Claim 13 harbouring a retroviral vector carrying an antisense SDI-1 DNA sequence under suitable conditions optionally followed by isolation of the recombinant retroviral particle produced.

19. A pharmaceutical composition comprising a recombinant retroviral particle according to Claim 17 and a pharmaceutically acceptable carrier or diluent.

20. A pharmaceutical composition comprising a packaging cell line according to Claim 13 and a pharmaceutically acceptable carrier or diluent.

21. The use or a retroviral particle according to Claim 17 for the preparation of a medicament for the treatment of disorders or diseases responsive to the anti-proliferative activity of SDI-1.

22. The use according to Claim 21 for the preparation of a medicament for the treatment of a cancer, or restenosis.

23. The use according to Claim 22 for the preparation of a medicament for the treatment of breast cancer.

24. The use of a retroviral particle according to Claim 18 for the preparation of a medicament for the treatment of a disorder or disease responsive to the proliferative activity of antisense SDI-1 DNA sequences.

25. The use according to Claim 24 for the preparation of a medicament for the treatment of cancer.

26. A method for introducing DNA sequences encoding SDI-1, a functional analogue, or a fragment thereof, or an antisense SDI-1 DNA sequence into human cells in vitro or in vivo comprising infecting a target cell population with a retroviral particle according to Claim 17.

27. A method for the treatment of a disorder or disease responsive to the antiproliterative activity of SDI-1 comprising administering to a living animal body, including a human, in need thereof a therapeutically effective amount of a retroviral particle according to Claim 17.

28. A method according to Claim 27 wherein the disorder or disease is a cancer, or restenosis.

29. A method for the treatment of a disorder or disease responsive to the proliferative activity of antisense SDI-1 DNA sequences comprising administering to a living animal body, including a human, in need thereof a therapeutically effective amount of a retroviral particle according to Claim 18.

30. A method according to Claim 29 wherein the disorder or disease is cancer, and the administration of the retroviral particle is combined with irradiation.

31. A method according to Claim 28 wherein the recombinant retroviral particle is administered as an injection, or by implantation of a packaging cell line harbouring:

a) a retroviral vector carrying a DNA sequence encoding SDI-1, a functional analogue, a fragment thereof or an antisense SDI-1 DNA sequence; and

b) at least one DNA construct coding for the proteins required for said retroviral vector to be packaged

into the living animal body, including a human, nearby or at the site of the tumor.

32. A method according to Claim 28 wherein the recombinant retroviral particle is administered as an injection, or by implantation of an encapsulated packaging cell line comprising encapsulated cells having a core containing packaging cells harbouring:

a) a retroviral vector carrying a DNA sequence encoding SDI-1, a functional analogue, a fragment thereof or an antisense SDI-1 DNA sequence; and

b) at least one DNA construct coding for the proteins required for said retroviral vector to be packaged

and a porous capsule wall surrounding said core, said porous capsule wall being permeable to the retroviral particles produced by the packaging cells, into the living animal body, including a human, nearby or at the site of the tumor.